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## MALAYSIA.

### FEDERATED MALAY STATES.

By Vice Consul General Caspar L. Dreier, Singapore, Straits Settlements.

The Federated Malay States include the four native States of Perak, Selangor, Negri Sembilan, and Pahang, having a total area of 27,506 square miles and an estimated population of 1,117,600.

The chief industrial enterprises of the Federated Malay States are the cultivation of rubber and the mining of tin and some wolfram. Within the last few years great strides have been made in the planting of Para rubber. It is estimated that the prospects of the rubber industry, unless some unforeseen disaster happens, are very promising. There are also vast groves of coconut trees, which bear abundantly, and for which the soil and climate of the States are peculiarly well suited.

Besides the planting enterprise, the principal source of revenue and prosperity of the Federation is the alluvial tin deposits, which, up to the past few months, have been worked with large profits.

Conditions in general throughout the Federated Malay States have been satisfactory, especially in the more thickly populated districts. There are vast territories in each of the States that are still quite wild, but railways and the extension of the various enterprises are gradually improving the situation and raising the standard of life and customs.

A number of the towns, such as Kuala Lumpur and Ipoh, are progressing rapidly, and they are centers of activity.

#### Foreign Trade of the Federated Malay States.

The latest statistics available on the foreign trade of the Federated Malay States are for 1913. The total trade for that year amounted to $131,891,080 United States currency, of which $84,117,096 represented exports and $47,773,984 imports, or a decrease of about $3,500,000 in exports and an increase of nearly $6,000,000 in imports compared with the preceding year. These figures do not include bullion and specie.

The principal increases in the imports were in tramway and railway material, $1,134,981; ironware, $725,732; machinery, $545,265; petroleum and benzine, $354,265; tobacco and cigars, $278,793; malt liquors, $269,780; and cycles and motor cars, $259,630.

The decrease in the value of the total exports was attributable to the fall in the prices of Para rubber and tin. In each case a larger quantity was shipped, but the export values decreased.

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**Principal Imports and Exports.**

The following table shows the principal articles and their value entering into the import and export trade of the Federated Malay States for two years:

| Articles. | 1912 | 1913 |
|---|---|---|
| IMPORTS. | | |
| Animals: | | |
| Cattle | $621,624 | $739,099 |
| Goats and sheep | 107,906 | 127,539 |
| Horses and ponies | 30,193 | 34,050 |
| Poultry | 364,691 | 409,256 |
| Swine | 869,006 | 857,841 |
| Apparel, hosiery, and millinery | 914,013 | 1,029,972 |
| Arrack and samshu | 290,240 | 377,700 |
| Bamboo and rattan ware | 109,175 | 99,183 |
| Beans and peas | 364,525 | 373,363 |
| Blankets, woolen | 30,053 | 40,272 |
| Books and maps | 69,230 | 64,970 |
| Boots and shoes | 123,533 | 133,138 |
| Bran | 401,320 | 472,097 |
| Brandy | 254,885 | 316,497 |
| Brassware | 44,842 | 45,740 |
| Bread and biscuits | 130,149 | 168,636 |
| Bricks and tiles | 52,310 | 106,740 |
| Butter and cheese | 48,932 | 60,158 |
| Cabinet ware | 119,950 | 119,179 |
| Candles | 44,749 | 50,612 |
| Carriages and carriage materials | 111,480 | 128,230 |
| Cartridges | 10,981 | 35,025 |
| Cement | 273,314 | 446,025 |
| Cloth, woolen | 37,563 | 42,118 |
| Coal | 356,920 | 387,868 |
| Coconut oil | 259,892 | 247,720 |
| Coffee | 38,228 | 26,422 |
| Cotton piece goods | 1,467,997 | 1,563,739 |
| Cotton, raw | 12,863 | 14,170 |
| Curry stuffs | 129,187 | 139,773 |
| Cycles, motor cars, and accessories | 896,581 | 1,156,211 |
| Drugs and chemicals | 141,041 | 221,586 |
| Dynamite | 49,385 | 39,490 |
| Earthenware | 363,031 | 383,699 |
| Eggs | 227,983 | 284,311 |
| Fancy goods and toys | 82,008 | 102,439 |
| Firewood | 8,836 | 15,549 |
| Fireworks | 43,991 | 35,226 |
| Fish: | | |
| Dried and salted | 649,412 | 77,168 |
| Fresh | 57,239 | 710,420 |
| Flour, wheat | 573,081 | 650,605 |
| Food, etc., n. e. s | 304,458 | 330,861 |
| Fruits | 279,497 | 262,474 |
| Gas and electric lighting material | 118,150 | 167,269 |
| Ghee | 193,486 | 245,650 |
| Gin | 88,474 | 58,647 |
| Ginger | 25,480 | 24,904 |
| Glass and glassware | 258,968 | 241,042 |
| Gram | 47,973 | 44,112 |
| Gunnies | 117,205 | 178,507 |
| Hats and caps | 141,379 | 134,534 |
| Hides, tanned | 88,723 | 103,815 |
| Iron bar and nail rod | 58,056 | 57,335 |
| Iron, corrugated | 158,465 | 281,633 |
| Ironware | 1,043,145 | 1,768,877 |
| Joss sticks and joss paper | 109,610 | 105,043 |
| Lamps and lamp ware | 94,200 | 117,088 |
| Lard | 163,658 | 151,042 |
| Leatherware | 80,371 | 63,617 |
| Lubricating oil | 122,193 | 136,997 |
| Machinery | 1,109,726 | 1,654,991 |
| Malt liquors | 683,042 | 952,822 |
| Manufactured articles, n. e. s | 629,167 | 672,243 |
| Matches | 219,236 | 115,449 |
| Mats and matting | 67,907 | 75,616 |
| Medicines | 378,554 | 455,791 |
| Metals, manufactured | 205,151 | 213,968 |
| Milk, condensed | 567,673 | 742,044 |
| IMPORTS—continued. | | |
| Mineral and aerated waters | $44,541 | $44,809 |
| Nails, iron (wire and rope) | 74,864 | 110,004 |
| Oilman's stores | 345,890 | 384,145 |
| Oils, n. e. s | 178,870 | 170,363 |
| Onions and garlic | 233,763 | 225,316 |
| Opium | 1,726,498 | 1,246,468 |
| Paddy | 175,755 | 186,316 |
| Paints | 91,558 | 145,791 |
| Paper and stationery | 525,042 | 646,385 |
| Peanut oil | 647,850 | 693,754 |
| Peanuts | 143,393 | 125,974 |
| Perfumery | 41,689 | 42,931 |
| Petroleum, including benzine | 1,138,141 | 1,492,406 |
| Provisions, fresh and salted | 764,054 | 654,580 |
| Rice | 10,943,203 | 10,776,639 |
| Rope | 30,488 | 34,970 |
| Salt | 87,067 | 90,935 |
| Sarongs and slendangs | 221,313 | 263,876 |
| Seeds, teel, etc | 68,071 | 58,534 |
| Silk piece goods | 94,869 | 88,320 |
| Soaps and soda | 119,110 | 125,493 |
| Steel | 88,152 | 331,414 |
| Sugar | 824,682 | 885,779 |
| Tapioca refuse | 21,045 | 24,886 |
| Tea | 395,351 | 420,265 |
| Telegraph and telephone materials | 122,987 | 329,688 |
| Textiles | 104,115 | 133,821 |
| Timber and planks | 176,847 | 151,866 |
| Tobacco and cigars | 1,829,372 | 2,108,165 |
| Tools, instruments, and implements | 193,084 | 282,105 |
| Tramway and railway materials | 445,895 | 1,580,876 |
| Umbrellas | 24,779 | 24,009 |
| Vegetables: | | |
| Fresh | 150,252 | 161,209 |
| Preserved | 327,882 | 370,352 |
| Whisky | 196,055 | 220,706 |
| Wick and waste | 29,379 | 38,430 |
| Woodenware | 199,456 | 317,649 |
| Wines | 80,285 | 106,939 |
| All other articles | 780,346 | 981,610 |
| Total | 41,831,195 | 47,773,984 |
| Bullion and specie | 1,383,649 | 1,280,491 |
| Grand total | 43,214,844 | 49,054,473 |
| EXPORTS. | | |
| Areca nuts | 66,146 | 45,733 |
| Ataps | 37,167 | 42,256 |
| Bamboo and rattan ware | 8,927 | 2,642 |
| Blachan | 19,477 | 18,677 |
| Coffee | 193,456 | 249,264 |
| Copra | 739,809 | 1,026,930 |
| Cycles and motor cars | 38,933 | 61,824 |
| Dammar | 4,597 | 14,630 |
| Fish, dried and salted | 113,475 | 137,855 |
| Foods, n. e. s | 215,182 | 134,487 |
| Fruits | 15,442 | 17,276 |
| Gambier | 141,258 | 102,852 |
| Getahs and rubbers, n. e. s | 73,023 | 26,571 |
| Glassware | 52,178 | 57,525 |
| Gunnies | 86,052 | 90,359 |
| Hardware, ironware, and machinery | 222,182 | 180,924 |
| Hides, raw | 64,443 | 70,864 |
| Indigo | 16,818 | 18,985 |
| Manufactured articles, n. e. s | 236,061 | 216,981 |

| Articles. | 1912 | 1913 | Articles. | 1912 | 1913 |
|---|---|---|---|---|---|
| EXPORTS—continued. | | | EXPORTS—continued. | | |
| Manure | $18,688 | $23,348 | Sugar | $91,781 | $3,743 |
| Mats and matting | 12,284 | 11,513 | Tapiocas | 199,103 | 113,049 |
| Medicines | 21,313 | 21,432 | Timber and planks | 13,505 | 18,832 |
| Metals, n. e. s. | 182,916 | ..... | Tin and tin ore | 47,839,294 | 47,542,628 |
| Paddy | 290,402 | 305,812 | Vegetables | 48,241 | 48,240 |
| Rubber, Para | 36,128,355 | 32,523,120 | Other articles | 39,983 | 253,255 |
| Rice | 248,929 | 585,386 | | | |
| Pepper | 31,074 | 14,104 | Total | 87,697,621 | 84,117,096 |
| Rattans and canes | 41,767 | 37,712 | Bullion and specie | 281,228 | 282,577 |
| Raw materials, n. e. s. | 53,272 | 21,365 | | | |
| Woodenware | 11,100 | 17,680 | Grand total | 87,978,849 | 84,399,673 |
| Seeds | 80,985 | 59,042 | | | |

**Sources of Imports and Destination of Exports Uncertain.**

The direction of trade can not be accurately stated. Much of the commerce with the colony is transit, and it is impossible at present to give the proportions of British and foreign trade with the colony.

The ports of Singapore and Penang are, of course, the principal ones, but many of the imports are reshipped from Singapore and Penang after having entered warehouses, etc., while, of course, some enter directly merely by passing through the ports mentioned, and it is therefore impossible to accurately state the country of origin or destination of the various commodities.

**Financial Conditions.**

The total revenue of the Federated Melay States for 1913 amounted to $25,167,679, or $5,596,420 in excess of the sum estimated and $956,587 more than that collected in 1912.

The total customs revenue in 1913 amounted to $7,746,163, a decrease of $227,080 compared with 1912, but an increase of over $2,500,000 as compared with 1911. Besides the customs duties the principal sources of revenue were licenses and excise ($6,957,726), railways ($5,375,804), municipal ($842,287), court fees ($585,044), land revenue and land sales ($1,584,137).

The expenditures for the year amounted to $26,845,158, an increase of $9,251,859 over the preceding year. There was $12,309,363 spent on railways, $2,755,043 on works and buildings, and $2,542,094 on roads and bridges. The estimated expenditure for the year was $26,401,811.

**Output of Tin and Gold.**

The revenue derived from mining operations during 1913 was $6,391,144. The royalty on tin amounted to $6,058,141, or $101,471 less than for the previous year.

The output of tin amounted to 842,130 piculs (56,142 short tons), of which 85,503 piculs (5,700 tons) were block tin and 756,627 piculs (50,441 tons) were tin ore. The average price of tin was $56 per picul (133⅓ pounds). The exports of tin and tin ore during 1913 were valued at $47,542,628 compared with $47,839,294 for the preceding year.

The quantity of gold placed on the market in the Federated Malay States during 1913 amounted to 14,975 troy ounces compared with 14,421 ounces for 1912. Of the total for 1913, 13,083 ounces were from the State of Pahang, compared with 12,441 ounces for 1912. The value of the gold output was $282,368, compared with $271,918

in 1912. Of the total quantity for 1913, 13,087 ounces on a crushing of 97,254 tons were obtained from the Raub mines in Pahang.

**Effect of Decreased Prices on the Rubber Industry.**

Most people interested in the rubber crop had expected a fall in the price of this product during 1913, but few were prepared for the decline that occurred. The fall in price, however, was not without its good effects on the plantation industry. Estates throughout the country have been more cautious in their expenditures and economy has been effected in all directions. Inferior grades of wild rubbers, it is expected, will no longer be able to compete with the cleaner and better plantation product, and it is estimated that there was a decrease of 3,000 to 4,000 tons in the production of wild rubber during 1913. With an increasing consumption of rubber, even only on past lines, the virtual disappearance of inferior wild grades should steady the market for this product. The full effect of this, of course, will not be evident for a time, as stocks of these grades had to be disposed of even at unremunerative prices.

The estates that have suffered the most from the rapidity of the fall in price are those that had only a part of their acreage in bearing and had calculated to use the profits on this to carry the younger areas on to the producing stage. With profits falling off as they did, it was impossible to carry out the original program, and at the same time the issue of fresh capital was rendered difficult. It was even no longer profitable to tap some 4 to 5 year old areas that had been counted on to yield a fair profit at 3 shillings (73 cents) per pound. The planters' loans fund had been of great assistance to many estates, and the capital of the fund was increased by a further $567,700 during the year.

As stated, all sound economies were effected on plantations during the year and it may now be assumed that rubber can be produced and placed on board by many estates at 1 shilling (24 cents) per pound. Estates with large areas of older rubber and those favorably situated can produce for less than this, but it is not expected that the majority of estates will be able to produce even at this price for some years.

**Area Under Rubber in Malaya.**

At the close of 1913 the total area planted in rubber in the Federated Malay States amounted to 433,324 acres, as compared with 399,197 acres in 1912. In both these years only areas of 100 acres and over are taken into account. In the Straits Settlements the total area under rubber increased from 94,263 acres at the end of 1912 to 111,316 acres in 1913. In the non-Federated States the acreage increased in the same period from 128,161 to 163,905.

The total area under rubber, therefore, in Malaya at the close of 1913 amounted to 708,545 acres, of which only 213,419 acres were in bearing at the end of the year, and only 165,566 acres throughout the year. The average yield works out at over 290 pounds per acre, which is rather higher than the average for the Federated Malay States alone. The total estate ouput for the whole country was, approximately, 28,170 tons.

The rubber acreage producing in the Federated Malay States during 1913 is returned at 164,390, an increase of about 28,000 acres over 1912. The average yield per acre works out at 275 pounds,

and when it is considered that about one-fifth of the whole bearing area has been taken in during the past two years, it will be granted that an estimate of 400 pounds per acre from rubber in full bearing is not too optimistic.

The rubber output from estates in the Federated Malay States in 1913 is returned at 20,226 tons, as compared with 14,193 tons in 1912. The rubber exported from the Federated Malay States during 1913, as given by the commissioner of trade and customs, including reexports, was 23,720 tons.

The reduction in the price of rubber has increased the tendency to favor wider distances for planting. It is being recognized that trees originally planted at wide distances are much more satisfactory as regards growth and yield than those planted closer and eventually given wider spacing by thinning out. The general view now is that not more than 100 trees should originally be planted to the acre, and that eventually about 40 or 50 to the acre should be left. A number of the leading planters even favor planting originally not more than 50 trees to the acre.

In the Federated Malay States only some 10,891 acres, out of a total of 433,324, is interplanted with catch-crops, and of this coffee occupies about 4,906 acres. Cover crops—that is, the growth of a crop not intended to produce a revenue, but merely as a growth on the surface for the purpose of preventing the washing away of the soil on hillsides, improving the texture of the soil, and reduce the expense of weeding—seem to meet with little favor by planters, regardless of the numerous advantages that could be derived if proper crops were chosen. Good results have been obtained on the Government experimental areas.

**Experiments With Fertilizers.**

An extensive series of experiments has been started at Castleton estate, Telok Anson. They have been planned to ascertain the effect of lime, nitrogen, potash, and phosphate in all combinations and to test also the differences due to applying them in the various forms in which they are purchasable, as, for instance, burnt lime against limestone, basic slag against superphosphate.

Each plot is of 2 acres, composed of trees of uniform age and girth. Results will be expressed in the first year in terms of increase of girth, later as yields of rubber. The experiments as established are to be permanent, the manures being renewed every two years in order that ultimate effects on renewal of bark, quality of rubber, etc., may be observed.

**Tapping of Rubber Trees.**

Tapping of rubber trees continues to receive attention and is a subject that usually comes up for discussion when planters, especially those from different districts, meet. It is seldom now that one sees more than two cuts on a quarter of the circumference or an equivalent number extending over one-half the circumference; a contrast to three years ago, when it was common to see three times this number of cuts per tree. This is evidence of the great progress that is being made in the sound conduct of estates. The experiments at Kuala Lumpur Agricultural Station continue to give most interesting results, which are greatly appreciated by planters.

Another interesting experiment is that which shows that there is actually less rubber produced during the first 12 months from three cuts on the quarter system than from two.

**Inferiority of the Plantation Rubber.**

There has probably been more discussion and writing about the subject of plantation rubber manufacture recently than during any other period since the beginning of the industry. The steadily falling price of the plantation product and the disparity in price between this and "fine hard Para" brought forward innumerable suggestions and theories to explain the supposed inferiority of the plantation product.

It is pointed out that what manufacturers complain of about plantation rubber is not that it is not good, but that it is not uniform as regards the qualities on which they depend in the manufactured article; each lot of plantation Para they buy has to be treated differently from the preceding lot. Otherwise their final product is not of the same quality.

The Federated Malay States Government has established an experimental vulcanizing and testing station at Kuala Lumpur. This station is fully equipped and is one of the most complete in existence. It is pointed out that the work to be undertaken at the station is purely experimental, and that at present no attempt is to be made to undertake the commercial testing of samples, though it is possible that this may be a future development.

**Laborers Employed on Estates, and Wages.**

The total number of laborers employed on estates in the Federated Malay States at the end of 1912 was given at 201,207, an increase of about 13,000 over the preceding year. As in previous years, Tamils form the greater part of the labor force in Selangor and Perak; in the former State they number 76,000 out of a total of 87,000, while in Perak they number 48,000 out of 72,000 of all races. In the Negri Sembilan Chinese form somewhat more than half the labor force. In Pahang the number of Chinese and Tamils are about equal, each forming about one-third of the total labor force.

During 1913 a general movement was organized to do away with the great inconsistencies in the rates of pay between estates in the same district. Good progress was made in this direction by agreement between estates in the district planters' associations, though a general action could not be taken throughout the country, and that exceptionally situated estates must give special terms.

The following table shows the highest and lowest rates paid per day for men in the four States:

| Race. | Selangor. | | Perak. | | Negri Sembilan. | | Pahang. | |
|---|---|---|---|---|---|---|---|---|
| | Highest. | Lowest. | Highest. | Lowest. | Highest. | Lowest. | Highest. | Lowest. |
| | *Cents.* | *Cents.* | *Cents.* | *Cents.* | *Cents.* | *Cents.* | *Cents.* | *Cents.* |
| Tamil | 28 | 15 | 28 | 17 | 28 | 15 | 36 | 14 |
| Javanese | 28 | 18 | 28 | 14 | 31 | 14 | 28 | 19 |
| Chinese | 51 | 28 | 51 | 22 | 51 | 29 | 56 | 34 |

The above figures are for estates over 100 acres in extent.

**Area Under Coconuts and Exports of Copra.**

The chief agricultural inspector estimated the total area planted with coconuts in the Federated Malay States in 1913 at 174,234 acres, or an increase of 16,634 acres compared with 1912. Of this total only 40,175 acres are returned as from estates of 100 acres and over, so that by far the greater part of the coconuts grown in the Federated Malay States are on small holdings. The estate cultivation, however, shows a large increase, the figure given above being nearly 10,000 acres higher than that for 1912.

The State of Perak leads in the cultivation of coconuts, with 90,664 acres, followed by Selangor with 43,561 acres.

Prices for copra and nuts continued satisfactory during 1913, and it is noted that the native copra in Perak showed a marked improvement, being cleaner and of a better grade.

The exports of copra from Perak during 1913 amounted to 7,194 long tons, from Selangor 1,946 tons, from Pahang 108 tons, and from Negri Sembilan 39 tons.

The four districts showing the largest areas under coconuts—Krian, Lower Perak, Kuala Selangor, and Kuala Langat—are all on the west coast, and the coconut plantations are almost confined to the alluvial coast plain on this side of the country. There is much good land available in Pahang, but transport difficulties have so far prevented much of this from being utilized. As this State is being opened by roads and railways it is believed that further agricultural developments will follow, especially with coconuts.

**Coffee and Rice Cultivation.**

Coffee is grown with some success as an intercrop with coconuts, nearly 2,600 acres being returned as under coffee and coconuts from estates out of the total of 40,000. The Liberian variety can well be grown with coconuts, and at present probably pays better than the robusta. It is possible that some of the new varieties allied to robusta may prove more successful.

The estate area under coffee during 1913 again showed a decline compared with the previous year, there being only 7,695 acres under this crop as compared with 8,609 acres in 1912 and 11,000 in 1911. The unsatisfactory prices realized for robusta coffee and the unsatisfactory growth in some localities probably explain this in part, and, of course, the coffee grown under rubber is shaded out as the trees mature. The greater part of the coffee is grown in Selangor, where the area shows a slight increase. Of the total 7,695 acres under coffee, 4,906 acres represent coffee grown as a catch crop under rubber and 2,597 acres of coffee under coconuts.

According to figures supplied by a district officer, the acreage under rice during the year 1913–14 was 123,828 compared with 125,873 for the preceding year. The yield of paddy for 1913 was 3,000,860 bushels.

**Experimental Plantations of Fibers—Camphor.**

A number of fibers have been planted on experimental plantations with a view to further study by the Government. According to a report of the Royal Botanic Gardens at Kew, England, a number of the zingiberaceous plants are likely to prove valuable as paper-making materials. Hedychium coronarium, it is stated, is superior

in strength to the strongest manila paper. A collection of zingiberaceous plants were obtained from the jungle and planted at Kuala Lumpur, Batu Tiga, and Gunong Angsi Government plantations under varying conditions. Those under partial shade have made the best growth. An experimental paper-pulp plant is shortly to be installed at the Agricultural Department, with which not only these but other wild paper-making plants can be tested.

The bushes of camphor at Kuala Lumpur and Batu Tiga have grown fairly well and have been more free from disease than in previous years. Seeds received from Formosa were, as before, unsatisfactory, giving about 1 per cent germination. Some success has been obtained in propagating camphor by marcotting the small branches of the younger bushes.

Building Operations.

The principal Federal buildings under construction during the year were the new supreme courts, extensions to the museum, the Chandu monopoly offices, completion of the high commissioner's lodge, and a mess house for police and survey probationers, all at Kuala Lumpur; the new quarantine station at Port Swettenham, and extensions of the lunatic asylum at Tanjong Rambutan.

Those being carried out from State estimates included new abattoirs at Kuala Lumpur, the Perak State Mosque at Kuala Kangsar, an infectious-diseases hospital and an infants' school attached to the King Edward VII School at Taiping, new hospital, town hall, with post office and fire station at Ipoh, a new block of offices at Seremban, and new offices with courthouse at Kuantan. Other items classed under the heading of works and buildings on which progress was made were additions and improvements to the Kuala Lumpur waterworks, increased storage at Ayer Kuning for the Klang water supply, extension of river embankment wall and river deviation at Kuala Lumpur, reconstructing the town drains at Taiping, drains for Bagan Datch village, water supply for the lower Perak delta, water supply for estates along the Sungei Siakup road and Kuala Kuran, drainage and water supply for Raub, a second outfall drain for Kuantan, and water supply for Beserah.

The sums provided for these operations totaled over $1,703,100, but there were in all 858 items in the estimates, for which $3,675,698 were voted.

Road Construction.

The expenditure on road construction was $544,538, resulting in the completion of 77 miles of new roads and progress on other sections not completed, distributed throughout the four States of the Federation.

The expenditure on the maintenance of metalled cart roads was, approximately, $1,167,684, the length upkept being 2,033 miles and the average cost per mile $573, including town streets.

The methods of upkeep adopted were chiefly those followed in previous years. In Selangor there has been an increased mileage surfaced with tarco, which has worn well in most cases and afforded protection to the metal.

In Perak attention has been given chiefly to the repair of potholes and use of stone capable of withstanding the motor-bus traffic.

The main road through Tapah, Kampar, Gopeng, and Ipoh, portions of which were bad not long ago, is now in fair condition, and shows that water-bound macadam can be upkept under existing conditions if good stone is available.

In Negri Sembilan small lengths of tarco have been laid, but the practice here and in Pahang is chiefly the same as in Perak.

A short section has been laid with tar macadam in Perak and another with concrete in Selangor, but it is too early to form a conclusion as to their advantages.

**Railway Construction and Surveys.**

The total expenditures during the year on construction and surveys of new railway lines in the Federated Malay States amounted to $4,204,207, as compared with $2,574,489 during 1912. Preliminary surveys of a number of projected lines were completed.

Work on the Pahang section of the East Coast Railway was started during 1913. This railway starts from Tembeling and proceeds northward toward Tumpat. The length of the line under construction was 12 miles. The total number of bridges and culverts provided for was 66. The expenditures during 1913 were $507,600. The remaining 6½ miles of the Semantan-Kuala Railway to Tembeling were opened to traffic during 1913. This railway forms the second portion of the Pahang branch of the East Coast Railway and is 42 miles in length. The total completed length of the line from Gemas is 117 miles. The construction expenditures during 1913 were $65,639.

The Kelantan section of the East Coast Railway starts from The total number of bridges and culverts in the first 32 miles is 81 of which 49 were completed at the end of 1913 and 12 were in progress of construction. Permanent way was laid for 30 miles and ballasted for 27 miles. The expenditures during the year were $1,397,000.

The Kedah Railway extension, Bukit Mertajam to Alor Star, is 56 miles in length, and branches off from the main line at Bukit Mertajam, in Wellesley Province, and proceeds in a northerly direction to Alor Star, the capital of Kedah. Permanent way was laid for 23 miles and ballasted for 20 miles. The total number of bridges and culverts is 123, of which 67 were completed during 1913 and 32 were in progress of construction.

The permanent survey was completed during 1913 on the Klang-to-Morib Railway. This railway runs from Klang, on the Port Swettenham main line, to Morib, and is 22 miles in length. A reconnaissance survey of a proposed continuation of the Klang-Morib extension to Sepang Road, on the main line, a distance of about 24 miles, was made during 1913.

The original survey of the Malacca-to-Gemas Railway was from Malacca to Ayer Kuning via Jasin. It has been decided, however, to abandon the portion from Ayer Kuning and proceed instead from Malacca to Gemas via Jasin, the total length of which is about 42 miles. The work on the new survey was commenced at the close of 1913.

The preliminary survey of the mountain railway to Gunong Tahan, which runs from a point on the East Coast Railway to the

site of a proposed hill station to Gunong Tahan, 5,200 feet above sea level, a distance of about 30 miles, was completed during 1913.

A survey was started on the proposed railway from Ipoh, on the main line, to Gopeng, and thence to Kampar, on the main line, and 15 miles of preliminary survey was completed to the close of the year.

A preliminary survey of the Seremban-to-Port Dickson line, 25 miles in length, was made during the year to improve the present route, which has heavy gradients and short, sudden curves.

**Process Followed Regarding Railway Projects, etc.**

All new lines are carried out by the construction department of the railways. The department sends out surveyors to make a preliminary survey of the proposed route and a report, with estimated cost, is made to the Government on the nature and prospects of the line. On sanction being obtained to commence construction, permanent survey is put in hand and arrangements made to acquire the necessary land.

Construction work follows closely after the permanent survey, and sections of the land are opened in lengths of about 7 miles each. Land clearing and earthwork contracts are let in small sections varying from half a mile to 2 miles in length, according to the nature of the country traversed.

The contractors taking over such work consist of Chinese principally, who are known to the department. Other works, such as sand and stone supply, foundations of masonry of bridges, foundations of buildings, etc., are let to petty contractors who have followed the railway construction work.

All plate laying and erection of bridge steel work is done by the department, material being obtained through the crown agents for the colonies in London. Timber work and erection of buildings are also generally done by the department.

Payments are made to the contractors monthly, and they are paid up to 90 per cent of the work done during the month.

While at present one of the large engineering and contracting local firms is constructing a large part of the concrete culverts, and a certain amount of construction work, nearly all requiring concrete, material of which is supplied by an American firm, the majority of the materials, equipment, rolling stock, etc., purchased by the railways is secured through the crown agents for the colonies in London.

**Operation of Railroads.**

The following information on railroads is chiefly from the annual report of the general manager of the Federated Malay States railways for 1913.

The year 1913 witnessed a steady development in railway business. Unfortunately the accounts do not readily lend themselves to comparisons with previous years, as the expenditures cover a period of 12½ months and the revenues a period of 12 months only. It had previously been the practice for expenditure to date from December 16 of one year to December 15 of the next, but commencing with the 1913 report it was decided to include expenditures from January 1 to December 31 of each year to correspond with the period of revenue. This has reduced the net profit on the year

1913 from $1,732,099 to $1,545,816 and the consequent interest on capital from 4.41 per cent to 3.93 per cent, and at the same time it affects all statistical comparisons.

**Investments and Earnings—Passengers and Freight Transported—Repairs.**

The length of lines open to traffic, including leased lines, on December 31, 1913, was 771 miles, or an increase of 36 miles over 1912. The capital account of the open lines (including motor service) amounted to $39,528,637, as follows: Federated Malay States open lines, $39,282,302; motor service, $246,335. The average capital outlay per mile of line open was $60,431.

The gross railway earnings (including motor service) amounted to $5,429,611, an increase of $649,000 over 1912. The gross working expenses for the year (including motor service) amounted to $3,883,446, as compared with $3,542,828 for the preceding year.

The total number of passengers carried by the railways during 1913 was 13,143,659, against 11,589,273 for 1912. Of the total for 1913, 286,555 traveled in first-class compartments, 1,607,207 in second-class, and 11,249,897 in third-class. These figures do not include season-ticket holders, passengers, assessed on trains, workmen, students traveling on reduced fare, or free-pass holders.

Freight transported during the year amounted to 1,172,794 tons and live stock numbered 136,457 head.

The following renewals were made during 1913 to the open lines by the engineering department: 241 rails, 110,048 sleepers, 15 points, and 59 crossings; 78,792 cubic yards of ballast supplied; and 96,541 cubic yards of earth for cessing deposited at banks.

The cost of maintenance per mile of line open per week of the Federated Malay States Railways for 1913 was $19, as compared with $18 for the preceding year. The expenditures on slips and wash-aways were $43,747.

**Purchase of Singapore Railway—Bridge Across Straits of Johore.**

The outstanding feature of the year 1913 was the purchase of the Singapore Railway from the Colonial Government, which enabled the management to proceed with a scheme for reconstructing Tank Road Station and doubling the line to Bukit Timah, thus providing a station more in keeping with the importance of Singapore as the southern terminus and sufficient siding and freight accommodation to keep pace with the rapidly increasing traffic.

Borings for the proposed bridge across the Straits of Johore were taken during the year, and preliminary plans of the bridge structure are being prepared by the consulting engineers. It is important that this work should not be delayed, otherwise the railway traffic will overtake the limits of capacity of the wagon ferries. This proposed structure has been receiving attention for the past two years, and at least one set of plans has been submitted to the Crown agents, but nothing as yet is definitely decided upon and it is likely that the matter will meet with further delay.

**The Ports of Penang and Swettenham.**

The purchase of the Prai dock and wharves at Penang from the Colonial Government has been completed. This gives the railway a much better opportunity to improve the freight-handling facilities at this port.

A comprehensive scheme for new wharves has been prepared. With the opening of the line via Alor Star to Bangkok a large development of business between Penang and Bangkok must result, and large expenditures will be necessary at Prai during the next three or four years for facilities to handle this traffic.

In the estimates for 1913, $488,278 was set aside for capital expenditure on trade facilities for the port of Swettenham and for the following year more than $750,000 was similarly appropriated. It is confidently felt that, with the completion of the new wharves, the erection of the new station, and the delivery of the additional rolling stock, the port will be equipped for all current requirements.

Swettenham is the principal port of entry to the Federated Malay States territory and is between Penang and Singapore. The railway connection is a direct line to Kuala Lumpur, the capital of the Federated Malay States. This line traverses a section where some of the oldest and most productive rubber estates are to be found, and is an important line. The Port Swettenham station showed the second largest increase in freight tonnage on the entire road, the increase for 1913 over 1912 being 31,815 tons. The total tonnage handled at this port for 1913 was 304,647 tons.

**Purchases of Railway Stock.**

During 1913, 22 new locomotives arrived, viz, seven of class H tender engines and five of class I tank engines for the Tembeling-Kota Bharu Railway, two of class H tender engines for the Kedah Railway, and five of class H tender engines and three of class I tank engines for open line. The new class I tank engines are 3 tons 4 hundredweight heavier than the engines of this class obtained in 1908 and 1912, the total weight of this engine in steam being 44 tons 19 hundredweight. Four hundred gallons' increase in water capacity accounts for the major portion of this additional weight, and the engines are thus rendered more suitable for work on passenger and freight trains.

Five of class E secondhand locomotives were purchased from the Burma Railway for the construction department. The cost of these five locomotives was $10,959 in running order at the central workshops.

Eight of class O secondhand locomotives were purchased from the Burma Railway, four for the construction department and four for open line, at a cost of $32,928 in running order at the central workshops.

Two 10-ton traveling hand cranes and one 5-ton and one 20-ton steam breakdown cranes were received from England and put together during the year. Two secondhand 4-ton steam cranes were purchased from the Tanjong Pagar Dock Board and another 2-ton steam crane from Johore Bharu was repaired, and these were placed for use at the central workshops.

**Other Additions to Rolling Stock—Railway Telegraph.**

Four first-class and four second-class coaches, built in England, were put together at the central workshops during the year.

Eight third class, eight third class and brake composites, and one postal-sorting van bodies of the new mail type were built in the cen-

tral workshops and mounted on the frames and bodies sent from England during the year.

The total stock of four-wheeled passenger coaches on December 31, 1913, was 65, as compared with 66 in 1912.

During 1913, 184 steel covered freight cars, 150 steel low sides, 44 steel high sides, and 25 wooden cattle trucks were procured and erected, and many more were in process of erection at the close of the year. All these vehicles are on 2 feet 9½ inches diameter wheels and of 10-ton capacity, with the exception of steel high sides, which are of 12-ton capacity.

The bodies of 25 cattle trucks, 50 timber trucks, 12 fish vans, and 24 freight brake vans were built in the central workshops and mounted on the frames sent from England. Most of these vehicles are on 2 feet 9½ inches diameter wheels and are of 10-ton capacity.

The total mileage of railway telegraph wires in 1913 was 2,099, an increase of 199 miles over the previous year. Twenty-five new telegraph offices were opened during the year, making the total number at the end of the year 150.

**Postal Operations—Savings Bank Deposits.**

The approximate number of letters, post cards, packets, and parcels posted and delivered during 1913 was 17,700,408, an increase of 2,180,758 over 1912.

The number of registered articles posted was 320,606, and the number delivered 296,030. The number of letters posted increased by 45,682, and those delivered showed a gain of 50,996 compared with 1912.

The parcels posted numbered 50,258, and those delivered 101,218, being increases of 16,142 and 22,152, respectively, over 1912.

British postal orders are still popular for making small remittances, 96,328 orders valued at $337,300 being issued during 1913.

Money orders to the value of $2,750,595 were issued during 1913, and those paid amounted to $628,620. As compared with 1912 these figures show increases of $293,194 and $114,961, respectively. The number of those issued increased by 15,519, and those paid by 6,992.

There were 3,179 telegraphic money orders, amounting to $92,687, issued, being an increase of 891 in number and $34,344 in value over 1912.

The revenue paid in as commission on money orders amounted to $34,438, an increase of $4,438 as compared with 1912.

The number of depositors in the savings bank increased by 931 during the year, the total number on December 31 being 8,036. The amount to the credit of depositors increased from $448,357 to $478,126. The average amount to the credit of each depositor decreased from $62 to $58.

**Telegraph and Telephone Service.**

During 1913, 422,401 telegrams were dispatched and 419,066 were received for delivery. As compared with 1912 this was an increase of 50,418 in the number dispatched and 38,273 in the number delivered. The revenue derived from telegrams was $85,628, of which $64,573 is included in the stamp sales. These figures showed an increase of $8,958 over 1912. The value of the telegrams sent free of charge for other Government departments was $32,358.

The total number of subscribers to the telephone exchanges on December 31 was 993, an increase of 164 over the preceding year. In addition there were 304 extension circuits, extension bells, and private lines maintained by the department. The revenue derived from telephones was $77,624, or an increase of $18,916 over the preceding year.

On December 31, 1913, there were 2,009 miles of telegraph and telephone lines, and 7,822 miles of overhead wire in the Federated Malay States, of which 5,473 miles were telephone wires. In addition, there were 12 miles of underground telephone cables containing 1,074 miles of wire, single line. These figures include 700 miles of telephone wire maintained by the department for the police, but do not include the wires maintained by the railway department for its own use. The posts and telegraphs department also owns 242 miles of telegraph wire in Johore.

New telegraph lines from Kuala Lumpur to Petaling and from Seremban to Labu and Sepang Road were constructed during the year and the Kuantan-Pekan line was completed.

Other lines were commenced, but not being completed owing to the late arrival of material. The work of reconstructing the telephone exchanges at Ipoh, Taiping, Batu Gajah, Gopeng, Klang, Kuala Selangor, and Port Swettenham was undertaken.

**Educational Facilities—Shipping Statistics.**

Considerable efforts are exerted to increase the facilities for education throughout the States making up the Federation. The number of schools under the supervision of the department in the State of Perak in 1913 was 223 and the average attendance was 11,038; in Selangor the number of schools was 62 and the average attendance 4,602; in Negri Sembilan the number of schools was 69 and the average attendance 3,687; and in Pahang the number of schools was 39 and the average attendance 1,541.

The supply of trained teachers has been inadequate, but the opening of a training college at Matang will in time somewhat relieve the present conditions.

The number of vessels, excluding native craft, that entered the Federated Malay States ports during 1913 was 4,882, with a tonnage of 2,124,907, compared with 5,014 vessels of 1,995,813 tons for 1912. The increased commerce of Port Swettenham, which is a port of call for many ocean-going vessels, is indicated by the following figures, showing the number of ocean-going vessels arriving for six years: 1908, 112; 1909, 174; 1910, 224; 1911, 236; 1912, 248; and 1913, 284. The tonnage arriving increased from 383,755 in 1908 to 1,035,448 in 1913.

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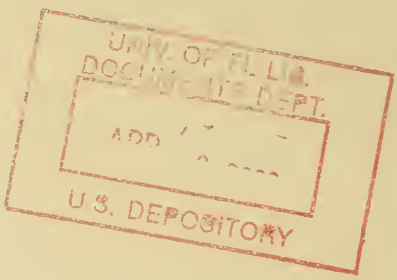
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